

Report of Magnetical Observations at Falmouth Observatory for the Year 1899. Latitude  $50^{\circ} 9' 0''$  N., Longitude  $5^{\circ} 4' 35''$  W.; height, 167 feet above mean sea-level.

The Declination and the Horizontal Force are deduced from hourly readings of the photographic curves, and so are corrected for the diurnal variation.

The results in the following tables, Nos. I, II, III, IV, are deduced from the magnetograph curves which have been standardised by observations of deflection and vibration. These were made with the Collimator Magnet, marked 66A, and the Declinometer Magnet, marked 66C, in the Unifilar Magnetometer No. 66, by Elliott Brothers, of London. The temperature correction (which is probably very small) has not been applied.

In Table V, H is the mean of the absolute values observed during the month (generally three in number), uncorrected for diurnal variations and for any disturbance. V is the mean of the products of the tangent of Dip and H.

In Table VI the Inclination is the mean of the absolute observations, the mean time of which is 3 P.M. The Inclination was observed with the Inclinator No. 86, by Dover, of Charlton, Kent, and needles 1 and 2, which are  $3\frac{1}{2}$  inches in length.

The Declination and the Horizontal Force values given in Tables I to IV are prepared in accordance with the suggestions made in the Fifth Report of the Committee of the British Association on comparing and reducing magnetic observations, and the time given is Greenwich Mean Time, which is 20 minutes 18 seconds earlier than local time.

The following is a list of the days during the year 1899 which were selected by the Astronomer Royal as suitable for the determination of the magnetic diurnal variations, and which have been employed in the preparation of the magnetic tables:—

January ...	1, 7, 10, 13, 27.	February ...	4, 5, 7, 8, 18.
March ...	4, 5, 26, 27, 30.	April ...	13, 15, 16, 21, 22.
May ...	13, 14, 24, 25, 29.	June ...	6, 7, 17, 25, 26.
July ...	15, 17, 22, 28, 29.	August ...	12, 16, 18, 19, 23.
September	5, 6, 7, 14, 20.	October ...	2, 3, 10, 20, 29.
November	2, 10, 16, 20, 27.	December	6, 11, 14, 15, 24.

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Table I.—Hourly Means of Declination at the Falmouth  
on Five selected quiet Days in

(18° + West.)

Hours	Mid.	1	2	3	4	5	6	7	8	9	10	11
Winter.												
1899.	'	'	'	'	'	'	'	'	'	'	'	'
Jan. ..	35·0	35·5	35·3	35·6	35·4	35·2	35·1	35·0	34·9	35·2	35·8	36·6
Feb. ..	35·9	36·2	36·3	36·4	36·3	36·4	36·3	36·3	36·5	36·9	38·0	38·6
March .	32·8	32·6	32·3	32·4	32·2	32·5	32·4	32·3	31·8	31·1	31·5	34·4
Oct. ..	31·0	31·1	31·1	31·0	30·9	30·8	30·6	30·0	29·2	29·0	30·0	31·9
Nov. ..	29·9	30·7	30·8	30·8	30·7	30·5	30·3	29·9	29·3	29·2	30·1	31·6
Dec. ..	30·0	30·1	30·2	30·4	30·4	30·4	30·2	30·0	30·0	30·1	30·5	31·2
Means	32·4	32·7	32·7	32·8	32·7	32·6	32·5	32·3	32·0	31·9	32·7	34·1
Summer.												
	'	'	'	'	'	'	'	'	'	'	'	'
April ..	33·4	33·7	33·6	33·6	33·4	33·0	32·6	31·6	30·2	30·2	31·6	34·2
May ..	31·6	31·7	31·3	31·5	31·1	30·1	28·8	27·6	27·3	28·3	30·5	33·3
June ..	32·7	32·6	32·5	32·4	32·1	30·8	29·3	28·8	28·5	28·5	30·6	33·0
July ..	32·2	31·7	31·7	31·6	31·2	30·5	29·6	29·6	28·9	29·4	31·1	33·0
August.	31·8	31·8	31·9	31·8	31·6	30·9	30·3	29·3	28·6	29·7	32·2	35·0
Sept. ..	28·7	28·7	29·2	28·8	28·5	28·3	27·6	26·5	25·9	26·3	28·6	31·3
Means	31·7	31·7	31·7	31·6	31·3	30·6	29·7	28·9	28·2	28·7	30·8	33·3

Table II.—Diurnal Inequality of the Falmouth

Hours	Mid.	1	2	3	4	5	6	7	8	9	10	11
Summer mean.												
	'	'	'	'	'	'	'	'	'	'	'	'
	-0·7	-0·7	-0·7	-0·8	-1·1	-1·8	-2·7	-3·5	+4·2	-3·7	-1·6	+0·9
Winter mean.												
	'	'	'	'	'	'	'	'	'	'	'	'
	-0·7	-0·4	-0·4	-0·3	-0·4	-0·5	-0·6	-0·8	-1·1	-1·2	-0·4	+1·0
Annual mean.												
	'	'	'	'	'	'	'	'	'	'	'	'
	-0·7	-0·6	-0·6	-0·6	-0·8	-1·2	-1·7	-2·2	-2·7	-2·5	-1·0	+1·0

Observatory, determined from the Magnetograph Curves  
each Month during 1899.

Noon	1	2	3	4	5	6	7	8	9	10	11	Mid.
Winter.												
' 37·2	' 37·6	' 36·4	' 36·0	' 36·0	' 35·7	' 35·6	' 35·2	' 35·2	' 34·7	' 34·8	' 34·8	' 34·9
39·5	39·7	39·0	38·1	37·1	37·1	37·0	36·7	36·4	36·1	36·1	35·8	35·2
37·0	38·5	38·6	36·7	35·3	34·1	33·3	33·0	32·6	32·7	32·6	32·4	32·7
33·5	34·7	35·0	34·2	32·9	32·1	31·8	31·6	31·2	31·1	31·0	30·8	30·9
33·0	33·3	32·5	31·4	30·7	30·6	30·3	30·2	30·1	29·9	30·0	30·0	30·1
31·8	32·3	31·8	31·2	30·7	30·3	30·1	29·8	29·6	29·7	29·8	29·8	30·0
35·3	36·0	35·6	34·6	33·8	33·3	33·0	32·8	32·5	32·4	32·4	32·3	32·3
Summer.												
' 37·2	' 39·5	' 40·2	' 39·0	' 37·1	' 35·7	' 34·4	' 33·3	' 33·4	' 33·7	' 33·6	' 33·4	' 33·6
35·8	36·9	36·7	35·7	34·0	33·0	32·4	32·2	32·1	31·9	31·8	31·8	31·8
36·2	37·9	38·4	37·8	36·6	35·1	34·4	33·8	33·3	33·1	33·2	33·2	33·0
35·4	36·8	37·4	36·7	35·2	34·0	33·4	33·1	32·9	32·5	32·5	32·2	32·2
36·6	37·7	37·3	36·3	34·6	33·3	32·5	32·4	32·5	32·5	32·3	32·0	31·8
34·3	35·4	35·2	33·4	31·5	29·9	29·3	28·9	29·1	29·0	28·6	28·4	28·7
35·9	37·4	37·5	36·5	34·8	33·5	32·7	32·3	32·2	32·1	32·0	31·8	31·9

Declination as deduced from Table I.

Noon	1	2	3	4	5	6	7	8	9	10	11	Mid.
Summer mean.												
' +3·5	' +5·0	' +5·1	' +4·1	' +2·4	' +1·1	' +0·3	' -0·1	' -0·2	' -0·3	' -0·4	' -0·6	' -0·5
Winter mean.												
' +2·2	' +2·9	' +2·5	' +1·5	' +0·7	' +0·2	' -0·1	' -0·3	' -0·6	' -0·7	' -0·7	' -0·8	' -0·8
Annual mean.												
' +2·9	' +4·0	' +3·8	' +2·8	' +1·6	' +0·7	' +0·1	' -0·2	' -0·4	' -0·5	' -0·6	' -0·7	' -0·7

Table III.—Hourly Means of the Horizontal Force at Falmouth  
Five selected quiet Days in

0·1800 + (C.G.S. units).

Hours	Mid.	1	2	3	4	5	6	7	8	9	10	11
Winter.												
1899.												
Jan. ..	648	649	649	650	652	653	654	655	654	647	645	646
Feb. ..	651	648	648	648	649	650	653	653	652	649	646	645
March ..	656	654	652	653	654	657	657	660	655	647	640	637
Oct. ..	667	669	667	667	668	669	670	668	663	657	649	648
Nov. ..	671	670	671	673	675	676	677	675	671	665	662	658
Dec. ..	679	677	679	680	681	682	683	682	681	679	677	675
Means	662	661	661	662	663	665	666	666	663	657	653	652
Summer.												
April ..	661	662	661	662	660	661	660	658	654	645	638	631
May ..	669	668	666	665	665	663	659	652	643	636	634	636
June ..	667	665	665	663	662	664	660	656	651	646	643	643
July ..	667	666	664	665	665	663	660	657	654	651	647	645
Aug. ..	672	670	670	669	668	666	663	658	652	647	644	646
Sept. ..	681	681	680	680	679	678	676	670	662	653	646	649
Means	670	669	668	667	667	666	663	659	653	646	643	642

Table IV.—Diurnal Inequality of the Falmouth

Hours	Mid.	1	2	3	4	5	6	7	8	9	10	11
Summer mean.												
	+ '00006	+ '00005	+ '00004	+ '00003	+ '00003	+ '00002	- '00001	- '00005	- '00011	- '00018	- '00022	- '00022
Winter mean.												
	'00000	- '00001	- '00001	'00000	+ '00001	+ '00003	+ '00004	+ '00004	+ '00001	- '00005	- '00009	- '00010
Annual mean.												
	+ '00008	+ '00002	+ '00002	+ '00002	+ '00002	+ '00003	+ '00003	- '00001	- '00005	- '00012	- '00016	- '00016

Observatory, determined from the Magnetograph Curves on each Month during the year 1899.

Noon	1	2	3	4	5	6	7	8	9	10	11	Mid.
Winter.												
649	653	652	648	645	647	650	650	650	649	649	648	647
646	649	652	651	649	649	651	654	656	656	656	655	657
641	649	654	655	655	656	656	659	658	656	656	657	658
648	653	657	662	664	666	669	671	671	671	672	669	669
661	665	669	672	675	676	676	676	675	674	673	672	672
677	678	678	678	679	681	683	682	682	682	685	681	682
654	658	660	661	661	663	664	665	665	665	665	664	664
Summer.												
632	639	650	658	660	664	668	663	666	666	664	664	665
648	657	663	666	665	666	671	674	676	674	672	670	670
646	649	654	662	666	669	673	677	677	676	673	671	670
650	653	661	665	665	668	669	674	676	674	674	671	670
649	657	664	666	669	670	673	680	680	679	677	677	676
660	670	676	681	682	684	684	687	685	683	683	684	682
648	654	661	666	668	670	673	676	677	675	674	673	672

Horizontal Force as deduced from Table III.

Noon	1	2	3	4	5	6	7	8	9	10	11	Mid.
Summer mean.												
- '00016	- '00010	- '00003	+ '00002	+ '00004	+ '00006	+ '00009	+ '00012	+ '00013	+ '00011	+ '00010	+ '00009	+ '00008
Winter mean.												
- '00008	- '00004	- '00002	- '00001	- '00001	+ '00001	+ '00002	+ '00003	+ '00003	+ '00003	+ '00003	+ '00002	+ '00002
Annual mean.												
- '00012	- '00007	- '00003	+ '00001	+ '00001	+ '00005	+ '00006	+ '00008	+ '00008	+ '00007	+ '00007	+ '00006	+ '00005

Table V.—Magnetic Intensity. Absolute Observations.  
Falmouth Observatory, 1899.

1899.	C.G.S. measure.	
	H or Horizontal force.	V or Vertical force.
January.....	0·18636	0·43558
February.....	0·18645	0·43548
March.....	0·18631	0·43543
April.....	0·18642	0·43509
May.....	0·18640	0·43539
June.....	0·18633	0·43474
July.....	0·18655	0·43515
August.....	0·18662	0·43525
September.....	0·18654	0·43572
October.....	0·18655	0·43498
November.....	0·18660	0·43548
December.....	0·18656	0·43545
Means.....	0·18647	0·43531

Table VI.—Magnetic Inclination. Absolute Observations.  
Falmouth Observatory, 1899.

Month.		Mean.	Month.		Mean.
January	15.....	66° 49'·5	July	8....	66° 48'·4
	23.....	66 51·0		21.....	66 46·9
	31.....	66 50·0		29.....	66 47·8
		66 50·2			66 47·7
February	10.....	66 48·6	August	10.....	66 47·3
	18.....	66 49·3		22.....	66 49·1
	27.....	66 50·1		29.....	66 46·1
		66 49·3			66 47·5
March	10.....	66 50·7	September	9.....	66 48·8
	24.....	66 51·3		23.....	66 48·6
	30.....	66 48·9		30.....	66 50·8
		66 50·1			66 49·4
April	7.....	66 48·9	October	11.....	66 47·0
	14.....	66 47·9		21.....	66 46·9
		66 48·4		31.....	66 47·6
					66 47·2
May	2.....	66 49·8	November	11.....	66 48·9
	8.....	66 49·1		20.....	66 48·1
	17.....	66 50·3		29.....	66 48·0
	27.....	66 48·3			66 48·3
		66 49·4			
June	8.....	66 48·4	December	11.....	66 48·5
	19.....	66 47·4		19.....	66 48·4
	29.....	66 48·2		29.....	66 48·6
		66 48·0			66 48·5